PERSONALITY AS A MODERATOR OF DOMESTIC VIOLENCE AND DEPRESSIVE SYMPTOMS IN A COMMUNITY SAMPLE OF WOMEN

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ABSTRACT

PERSONALITY AS A MODERATOR OF DOMESTIC VIOLENCE AND DEPRESSIVE SYMPTOMS IN A COMMUNITY SAMPLE OF WOMEN

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Although depression is a common outcome following the traumatic stress of domestic violence (DV), not all women who are abused develop depressive symptoms. One factor that may moderate the development of depressive symptoms after traumatic events is personality traits, although this has not been assessed with DV specifically. This study examines the moderating influence of four five-factor personality traits (agreeableness, conscientiousness, extraversion, and neuroticism) on depressive symptoms following exposure to DV. Data on personality traits, depressive symptoms, and DV were gathered from a community sample of women (N = 165) as part of a 10-year longitudinal study on DV. It was hypothesized that these traits would exert main and moderating effects on depressive symptoms within the context of DV. A series of hierarchical linear regressions indicated that although agreeableness, conscientiousness, and neuroticism had significant main effects on depressive symptoms, and both extraversion and neuroticism moderated the effect of DV on depressive symptoms, the main effects of all traits but neuroticism became insignificant and the moderating effects of both extraversion and neuroticism remained significant when other personality traits were co-varied. The function of neuroticism and extraversion as vulnerability and protective factors has implications for the treatment of depressive symptoms following DV exposure. Future directions for research are also discussed.

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Introduction

Domestic violence (DV), defined here as violence against a woman by a man within the context of an intimate relationship, is a pervasive problem for women in the U.S., with lifetime prevalence rates at about 25 percent (Tjaden & Thoennes, 2000). This physical and emotional abuse within intimate relationships is associated with disproportionately worse mental health-related outcomes for abused women (Campbell, 2002; Campbell & Lewandowski, 1997; Ehrensaft, Moffitt, & Caspi, 2006; Gelles, & Straus, 1989; Taft, Vogt, Mechanic, & Resick, 2007). Specifically, many studies have shown that women exposed to DV experience poorer mental health outcomes ranging from increases in depressive and anxiety symptoms, including post-traumatic stress disorder (Astin, Lawrence, & Foy, 1993; Bean & Möller, 2002; Cascardi, O'Leary, & Schlee, 1999; Gleason, 1993; Golding, 1999; Hou, Wang, & Chung, 2005; Houskamp & Foy, 1991; Jones, Hughes, & Unterstaller, 2001; Mertin & Mohr, 2001; Weingourt, Maruyama, Sawada, & Yoshino, 2001). In part due to these effects on mental health as well as the resultant physical injuries, DV results in 800 percent higher costs of healthcare for abused women relative to women who were not abused (Wisner, Gilmer, Saltzman, & Zinc, 1999).

Not all women within violent interpersonal relationships develop mental health disorders, however, suggesting that there are factors about these relationships or the participants in them that account for variation in outcomes. One specific factor that may moderate the relationship between traumatic experiences, more generally, and mental health outcomes is personality traits (McFarlane & Yehuda, 1996; Miller, 2003). This may particularly be the case within the interpersonal context of DV, in which personality traits and theorized to play a role in interpreting and responding to interpersonal events, including interpersonal stress and trauma (McCrae & Costa, 1996). Identifying the specific role that personality traits play in the risk for

poor mental health outcomes resulting from DV exposure could influence the development of therapeutic methods to treat women who have been abused. This study uses an interpersonal framework to examine the role that personality traits play in influencing women's mental health within the context of DV, specifically how certain personality traits both independently and in combination with other traits can serve to magnify, mitigate, or otherwise influence the effects of DV on women's depressive symptoms.

DV and Depression: An Interpersonal Model

Although depression is often associated with exposure to traumatic events (McCutcheon et al., 2009; Suliman et al., 2009), women in abusive relationships may be at an even greater risk than those experiencing other kinds of trauma for the development and diagnosis of depressive symptoms. This may be the case due to the inherently interpersonal nature of depression as a disorder, such that it is generally understood as being caused by disruptions of and expressed through interpersonal relations (Joiner, Coyne, & Blalock, 1999; Segrin, 2011). As such, it is useful to understand depression within an interpersonal context (e.g., among battered women, depression must be understood as existing within and likely being a function of the abusive dyadic relationship). One thing that distinguishes depression from other forms of interpersonal dysfunction (e.g., anxiety) is the disturbance in mood, specifically either the presence of depressed mood or a reduction in positive mood (American Psychiatric Association, 2004). Although those who develop symptoms of depression often do so after experiencing interpersonal conflict (Blatt & Zuroff, 1992; Eberhart & Hammen, 2010; Hammen, Shih, & Brennan, 2004; Rizzo, Daley, & Gunderson, 2006), these symptoms often afflict those with an affective vulnerability (i.e., those with personality traits predisposing them to depression). From

an interpersonal perspective, then, depression can be thought of as interpersonal dysfunction, the expression of which has a strong affective component.

DV is not only transgressive on an interpersonal level, but it also involves betrayal within the interpersonal context, which Freyd (1996) proposes results in more severe psychological effects (including depression) than non-interpersonal forms of trauma. That trauma involving interpersonal betrayal has a differentially stronger effect on the development of depressive symptoms relative to non-interpersonal trauma has been indicated in several studies (Allard, 2009; Freyd, Klest, & Allard, 2005; Tang & Freyd, 2011). In addition to involving a betrayal of interpersonal trust, DV is also often chronic and repetitive (Baum, O'Keefe, & Davidson, 1990; Woods & Campbell, 1993), characteristics that Herman (1992) suggests are also associated with more severe psychopathological symptoms (e.g., mood dysregulation, cognitive disruption, and physiological hyperarousal) than more time-limited forms of trauma, whether it is interpersonal (e.g., stranger rape) or non-interpersonal (e.g., car accidents) in nature. The chronicity of stress has also been associated with increased levels of depression both independently (Matheson et al., 2006; Niedhammer, Goldberg, Leclerc, Bugel, & David, 1998) and in addition to acute stress (Hammen, Kim, Eberhart, & Brennan, 2009).

In addition to depression being prevalent among women who have experienced DV, DV and other forms of interpersonal conflict (e.g., marital discord) are common themes among women diagnosed with depression (Campbell & Soeken, 1999; Saunders, 1999; Vitanza et al., 1995). Depressed women on average reporting twice as many instances of DV as women with other psychiatric diagnoses or medical problems and three times more than women without any diagnosis (Hammen, 1991). Conversely, the development of depressive symptoms has been identified as one of the most prevalent mental health problems reported by women who have

experienced DV (Bean & Möller, 2002; Follingstad, Brennan, Hause, Polek, & Rutledge, 1991). For example, rates of depression (as indicated by either diagnosed major depressive disorder or otherwise clinical levels of depressive symptoms, e.g., Beck Depression Inventory scores > 20) among abused women range from 33 to 52 percent (Campbell, Sullivan, & Davidson, 1995; Cascardi & O'Leary, 1992; Cascardi, O'Leary, Lawrence, & Schlee, 1995; Orava, McLeod, & Sharpe, 1996; Sato & Heiby 1992; West, Fernandez, Hillard, Schoof, & Parks, 1990). Within DV shelters specifically, Helfrich and colleagues (2008) found that abused women had a twelve-month prevalence rate of major depressive disorder over twenty times that of the U.S. national prevalence rate of depression among women (51.4 percent vs. 2.4 percent, respectively). From the perspective of lifetime prevalence, the rates of major depression in battered women range from 63 to 81 percent (Cascardi et al., 1995; Gleason, 1993), which are roughly triple the average lifetime prevalence rate among women nationally (21.3 percent) according to epidemiological research (Kessler, McGonagle, Swartz, Blazer, & Nelson, 1993). Additionally, among women receiving mental health treatment, rates of lifetime DV exposure were 61 percent among outpatients and 68 percent among inpatients (Dienemann, et al., 2000).

In addition to this general association between DV and symptoms of depression, studies have indicated that DV exposure predicts these symptoms (e.g., Zlotnick et al., 2006). Moreover, there is evidence that this relationship is not reciprocal (i.e., there is no evidence that depression *causes* DV). For example Christian-Herman and colleagues (2001) found that DV and other forms of marital discord predicted depressive symptoms when history of depression was controlled for whereas depression did not predict DV and other forms of marital discord when this discord was taken into account. Additionally, greater frequency and severity of violence experienced (including psychological and sexual abuse along with the physical violence) is

associated with more depressive symptoms (Bogat, Levendosky, Theran, von Eye, & Davidson, 2003; Cascardi et al., 1995; Follingstad et al., 1991; Kernic et al., 2003; McCauley et al., 1995; Quigley & Leonard, 1996). Related to this, the more severe the violence, the more severe were the depressive symptoms the women experienced (Gelles & Harrop, 1989). In addition, a longer period of exposure to DV is also associated with more depressive symptoms (Bogat, Levendosky, DeJonghe, Davidson, & von Eye, 2004). This body of research suggests that DV has a dose-response effect on depressive symptoms.

Although this research contributes to an understanding of what may result upon exposure to DV, it does not explain why some battered women develop depression and others do not. Personality theory, in contrast, provides a framework for such predictions in the form of specific personality traits and constellations of these traits that may interact with DV to influence the degree to which a person is at risk to develop symptoms of depression.

Personality, Depression, and DV

Sullivan (1953) conceived of personality as being an individual's habitual behaviors within interpersonal relationships across time. In this view, personality is not only expressed, but also understood within the context of interpersonal relations (Stevenson-Hinde, 1998; Sullivan, 1953; Wachtel, 1993). This understanding of personality is particularly relevant within the contexts of both DV and depression given the inherently interpersonal nature of both.

The idea that personality has an influence on the reaction to traumatic experiences was a contribution of early psychoanalytic thought (Ferenczi, 1932/1949). In their more contemporary framework on the various relationships between personality and psychopathology, Widiger and Smith (2008) clarify this idea, suggesting that personality is integral to the development and expression of psychopathology such that personality can serve as a risk and/or protective factor

for psychopathology as well as the means through which individuals interact with the environment in which psychopathology develops. In this way, personality may serve to directly influence the development of depression as well as moderate external factors influencing its development.

Although there are a variety of theoretical models of personality, the Five-Factor Model (FFM) is an especially appropriate way of assessing the role of personality because the traits described in this model describe, augment, or otherwise map onto interpersonal conceptualizations of personality (Ansell & Pincus, 2004; Wiggins & Trapnell, 1996). Moreover, there is evidence that the FFM traits are stable across time, biologically rooted, cross-culturally applicable, and can structurally situated within higher-order (2-3-4-factor) or lower-order (6-7-factor or 30-facet) models of traits (Costa & McCrae, 1992a; Digman, 1997). Further, whereas interpersonal theory describes the process by which personality has its influence, FFM provides the structure that this personality takes (Costa & McCrae, 2011). For example, Wiggins (1991) proposed that FFM traits extraversion and agreeableness were synonymous with two interpersonal personality variables of agency and communion, respectively, which he considered to be the fundamental modalities of interpersonal behavior through which personality can be quantified (Costa & Widiger, 1994; Wiggins, 1982). Subsequent studies found that all the FFM traits could be factor analyzed to fit within this dual super-factor framework (DeYoung, Peterson, & Higgins, 2002; Digman, 1997). However, as Wiggins and Trapnell (1991) suggest, and Markon and colleagues (2005) demonstrate, greater specificity in the descriptions of both normative and pathological personality is gained by using a personality model incorporating four or five personality traits versus a dual superordinate trait model.

The FFM proposes that five personality traits (agreeableness, conscientiousness, extraversion, neuroticism, and openness to experience) are the most comprehensive and parsimonious means of measuring and describing human emotions and behavior (McCrae & Costa, 1990). FFM theorists propose that these traits are basic tendencies that interact with the environment to produce characteristic adaptations (McCrae & Costa, 1996). These characteristic adaptations help to explain the broad range of normal behaviors exhibited by people in similar situations. With respect to interpersonal functioning specifically, behaviors produced by this trait-environment interaction themselves become part of the environment, allowing for the interplay between the behavior of one person and that of another, thereby producing interactive feedback loops of behavior (Costa & McCrae, 2011). The behaviors within these loops are often mutually reinforcing (e.g., a person low in trait agreeableness will often behave in a hostile manner across different situations, which serve to reinforce his hostile way of behaving), leading to repetitive cycles of interpersonal behaviors (Wachtel, 1982).

Within these cycles of interpersonal transactions, FFM traits also influence the development of psychopathology. Although it is a model of normative personality, the FFM can also be used to explain risk factors for psychopathology, which is understood within the context of the FFM's general theoretical framework as being a response to the normal trait-environment interaction process that is pathological and maladaptive (McCrae, 1994). In this way, Widiger and Trull (1992) suggest that traits can serve as predispositions for and pathoplastic ways of expressing Axis I disorders. For example, as Kotov and colleagues (2010) indicate in their meta-analysis, conscientiousness, extraversion, and neuroticism have a much more substantial main effect on depressive symptoms than do agreeableness and openness. This suggests that while the former three traits may serve as diatheses for depressive symptoms, if the latter two traits have

an influence within the context of depressive symptoms, it is not direct. For example, these two traits may affect the way in which these symptoms are expressed (e.g., pathoplasticity). As Cain and colleagues (2011) demonstrate in their study of interpersonal personality traits and major depressive disorder, these pathoplastic means of expressing depressive symptoms provide incremental influence on their course. One possible implication of this is that for traits for which the main effect is less pronounced (e.g., agreeableness), this effect can be expressed less directly, mediated through more other behaviors (e.g., maintenance of social relations).

Widiger and Trull (1992) further propose the possibility that a given disorder and a personality trait can be manifestations along the same spectrum of psychological phenomenon (e.g., generalized anxiety disorder and the anxiety facet of neuroticism). Further research has demonstrated that a broad range of Axis I disorders can not only be described but also differentiated by FFM personality traits (Katon et al., 1995; Nowakowska, Strong, Santosa, Wang, & Ketter, 2005; Trull & Sher, 1994). For example, low levels of conscientiousness distinguished ADHD from other outpatients (Ranseen, Campbell, & Baer, 1998). Moreover, Bagby and colleagues (1997) demonstrated that extraversion levels differentiated outpatients with bipolar disorder from those with major depression while both were in remission.

Although it outlines a general pattern of trait-environment interaction, the FFM does not provide a precise mechanism by which personality has its effect on psychopathology, although this is something that is addressed within interpersonal theory more broadly. In his early formulation of interpersonal theory, for example, Sullivan (1953) observed that the individual exists within an environment that is inherently social. Because of this, not only does personality partially consist of an internalization of the broader social and cultural context, but also that the specific behaviors influenced by personality style serve the function of fulfilling interpersonal

needs and goals. The effectiveness of these behaviors in achieving these needs and goals is important as, in the interpersonal view, psychopathology is thought of as being the result of these needs and goals being frustrated (Horowitz, 2004; Sullivan, 1953). Wachtel (1982) further elaborates that an individual's personality situates him or her within a cyclic pattern of interpersonal relations, within which the individual has interpersonal transactions consistent with his or her personality as well as reacts to these transactions in idiosyncratic ways. The frustration or fulfillment of interpersonal needs and goals (and the corresponding psychopathology or lack thereof) is thus also a cyclical phenomenon.

Within these cycles, FFM personality traits can be observed in the way they influence the means by which individuals choose and enact their interpersonal responses to conflicts and other forms of interpersonal stress, which Holahan and colleagues (1999) propose can either buffer or enable the depressogenic effects of social stress. For example, in the case of stress-related psychopathology, Hewitt and Flett (1996) suggest that the role personality traits play can be seen in how people cope with the stress, which, in turn, affects the degree to which they experience maladaptive outcomes. Extending this idea, Costa and colleagues (1996) propose that appraisals and other coping reactions are behavioral manifestations of personality traits, which may moderate the development of depressive symptoms. In turn, Lazarus and Folkman (1984) suggest that these appraisals and coping mechanisms result in the presence or absence of post-stress or post-traumatic psychopathology. A number of studies support this finding, demonstrating that personality predicts appraisals of stress, which, in turn, are related to mental health outcomes (Folkman, Lazarus, Gruen, & DeLongis, 1986; Hemenover, 2001; Hemenover & Dienstbier, 1996).

The inherently intimate nature of DV entails that perceptions of the violence and of the person perpetrating it occur within an interpersonal context. As with other instances of interpersonal transactions which are interpreted by the individual person, the DV event itself is subjectively perceived and appraised by the person experiencing it (Leising & Borkenau, 2011), making the perceived stress of DV an important factor in the development of depressive symptoms in its aftermath. Indeed, the influence of stress appraisals on the development of depressive symptoms has also been observed within the context of DV. Several studies have found that self-reported negative appraisals of DV were associated with a higher prevalence of depressive symptoms among women (Martinez-Torteya, Bogat, von Eye, Davidson, & Levendosky, 2009; Mourad, Levendosky, Bogat, & von Eye, 2008) and, in one study, predicted depression over and above psychological abuse (Nurius et al., 2003).

With respect to personality specifically, Pearlin and Schooler's (1978) early study on personality and its interaction with life events found that personality predicted emotional responses to a variety of different stressors both directly and through coping mechanisms. They further suggest that personality has indirect effects on the development of stress-related pathology through appraisals of marital stressors (e.g., violence) and other coping mechanisms. This research is consistent with the transactional theory of stress, which suggests that stress (or, in the case of DV, trauma) is the result of the interaction of the person and the environment, the effects of which are mediated by appraisal and coping processes (Lazarus & Folkman, 1984).

Although personality has its effect on the level of the individual person, personality psychologists have focused their research on traits and their effects on psychological outcomes (depressive and otherwise) at the level of the variable. It is also at this level that mechanisms of influence and theoretical descriptions of FFM traits are most robust. Because agreeableness,

conscientiousness, extraversion, and neuroticism are the four traits that have consistently demonstrated their relationship both with depression and with the stress-related appraisals that precede them (Kotov, Gamez, Schmidt, & Watson, 2010; Malouff, Thorsteinsson, & Schutte, 2005), these four traits will be the foci of this study. Each of these traits will be discussed individually with respect to their relationship with both DV and depression.

Agreeableness.

Agreeableness is characterized by interpersonal warmth and the motivation to maintain positive and harmonious relationships with others (Graziano & Eisenberg, 1997; Graziano & Tobin, 2009). Studies have shown that agreeableness is associated with differences in the perceptions of social situations and interpersonal attribution as well as related to beneficial strategies of conflict resolution and coping with stress (Jensen-Campbell & Graziano, 2001). Higher levels of agreeableness are also associated with better interpersonal adjustment (Jensen-Campbell & Graziano, 2001). This association between agreeableness and positive measures of interpersonal adjustment and functioning are evident in the relationship between the trait and depression. Many studies have found that high levels of agreeableness are negatively correlated with depressive symptoms (Chien, Ko, & Wu, 2007; Finch & Graziano, 2001; Lozano & Johnson, 2001; Piedmont & Ciarrocchi, 1999). However, the main effect of agreeableness on depression, while significant, is weak, which suggests that its importance within the context of depression is not as a diathesis. Instead, it is possible that the effect of agreeableness is achieved indirectly, possibly through the way people with high or low levels of agreeableness maintain relations with others.

Agreeableness has a strong association with social support, which influences how people deal with interpersonal stress and conflict. As Wiggins (1991) notes, more so than the other

FFM traits, agreeableness is a fundamentally interpersonal trait and, as such, plays an influential role in how people function within relationships and relational conflict. Related to this, Swickert (2009) proposes that this interpersonal aspect of agreeableness affects the degree to which individuals experience social support, a finding that has been demonstrated in several studies. For example, O'Brien and DeLongis (1996) found that individuals higher in agreeableness were more likely to seek out social support in response to stressful experiences. Accordingly, there is also a relationship between higher levels of agreeableness and greater amounts of social support given and received (Bowling, Beehr, & Swader, 2005; Hudek-Knežević, Krapić, & Kardum, 2006; Zellars & Perrewe, 2001) as well as size of social support network and perceived satisfaction from this network (Tong et al., 2004).

The relationship between agreeableness and social support is important within the context of depression. Pierce and colleagues (1996) suggest that not only does social support augment existing coping methods (e.g., influencing positive appraisals of oneself), but also serves as a medium through which coping can occur (i.e., social networks providing a means by which conflicts can be worked through). Moreover, there is some evidence that the negative relationship between agreeableness and depression has to do with the relationship between agreeableness and social support. For example, Hoth and colleagues (2007) found that neither agreeableness nor social support predicted depression on their own, but rather only achieved an effect through their interaction.

As Janoff-Bulman (1992) notes in her framework on trauma and post-traumatic response, other people play an influential role in how well individuals function psychologically following the experience of a traumatic event. This is also true for women who have experienced DV, as social support is an especially important resource for women who have experienced DV.

Although social support can take a number of different forms (practical, emotional, material, etc.), several studies suggest that within the context of DV, the quality of this support is a potential buffer against depression and other poor mental health outcomes (Beeble, Bybee, Sullivan, & Adams, 2009; Carlson, McNutt, Choi, & Rose, 2002; Coker, Watkins, Smith, & Brandt, 2003; Constantino, Kim, & Crane, 2005; Lee, Pomeroy, & Bohman, 2007; Mitchell & Hodson, 1983). More specifically, using the sample of women on whom the current research was based, Levendosky and colleagues' (2004) found that size of the social network and disclosure of violence to members of social support network directly predicted depressive symptoms among battered women. Further, in an analysis on this same group of women, Trotter, Bogat, and Levendosky (2004) found that emotional support moderated the relationship between DV and depressive symptoms, a form of social support that Zellars and Perrewe (2001) found was linked to agreeableness.

Although agreeableness has not yet been studied directly among women who have experienced DV, its functioning can be observed through its association with social support. However, the relationship between social support and depression is more complicated among battered women than among other groups of people. Specifically, the male partners of battered women often directly attempt to attrite the social support networks of their female partners (Dobash & Dobash, 1998, Walker, 1979), the effect of which can be observed in battered women reporting lower levels of social support and satisfaction from this support than non-battered women (Barnett, Martinez, & Keyson, 1996; Tan, Basta, Sullivan, & Davidson, 1995; Thompson et al. 2000), although this effect is not demonstrated across all studies of DV (e.g., Levendosky et al., 2004). Given this, agreeableness will probably serve less to facilitate the creation and expansion of new social networks than to prevent the attempted attrition of those that already

exist. One possibility is that it is through this social support (or, more specifically, the maintenance of it), that agreeableness influences depression. Agreeableness is expected to have a main effect on depressive symptoms within the context of DV such that women high in agreeableness will have fewer depressive symptoms when exposed to DV than women with lower levels of this trait. However, there will also likely be a mediating effect such that the full effect of agreeableness will be explained through the influence of social support. This mediating effect of social support between agreeableness and depressive symptoms may also be observed among women without DV exposure (thus potentially leaving the relationship between the variables unchanged), although the process is subtly different. Among women without exposure to DV, agreeableness may serve to enrich and expand social support networks. In contrast, among women who have experience DV, agreeableness may preserve social networks in an environment in which these networks are degraded,

Conscientiousness. Conscientiousness is a personality trait embodying characteristics of self-discipline, behavioral restraint, and striving for achievement within the interpersonal context (Costa & McCrae, 1985). Even more so than agreeableness, conscientiousness is also a strong negative correlate of depression (Kotov et al., 2010). This effect may be due in part to the way in which interpersonal stress is interpreted. For example, conscientiousness has a positive association with competency beliefs (Trautwein et al., 2009), thus promoting more positive and less self-critical interpretations of life events (e.g., fewer self-derisive comparisons between oneself and others). How conscientiousness functions in relation to stress is also apparent in the mechanisms by which people cope with interpersonal stress. FFM theorists suggest that low levels of conscientiousness and its associated qualities (e.g., need for achievement, self-discipline, and deliberation) make one more prone to lower achievement in life as well as poorer

coping strategies (McCrae & Costa, 1985; Watson & Hubbard, 1996), which in turn contribute to psychopathology, specifically depression (Bromley, Johnson, & Cohen, 2006). Rather, more conscientious individuals are more likely to deal with interpersonal stress one step at a time and feel as though they became stronger as a result of this stress than less conscientious individuals (Costa, Somerfield, & McCrae, 1996).

Many studies have found that low conscientiousness has a main effect on depression among both outpatient and non-clinical samples (Anderson & McLean, 1997; Chien et al. 2007; Enns et al., 2001; Kendler & Myers, 2010; Khan et al., 2005; Kotov et al., 2010; Lozano & Johnson, 2001; Nowakowska et al., 2005; Piedmont & Ciarrocchi, 1999; Trull & Sher, 1994). Among patients diagnosed with major depression, conscientiousness remained low even after the depression was treated, suggesting that not only was conscientiousness a diathetic factor influencing the development of depression, but that depression itself did not influence levels of conscientiousness (Costa et al., 2005). Looking at this association from the perspective of appraisal of stress, among the traits in the FFM, conscientiousness is most strongly associated with appraisals of stress that are less self-critical and more amenable to adaptive and efficacious methods of coping (Piedmont & Ciarrocchi, 1999; Vickers, Kolar, & Hervig, 1989). Additionally, high levels of trait conscientiousness are associated with correspondingly high levels of self-esteem, self-faith, self-control, hopefulness, and locus of control (Marshall et al., 1994; Penley & Tomaka, 2002), the last of which has been identified as a protective factor in the development of depression (Johnson & Sarason, 1978). These characteristics also foster the formation of more adaptive cognitive schemas, in contrast to the more self-critical aspects of trait neuroticism. Within the context of DV, high levels of conscientiousness should serve a

protective function against the development of depression by leading to less self-critical appraisals of the violence and more adaptive coping mechanisms.

Although conscientiousness is directly associated with adaptive responses to stress and trauma, it has not been directly studied within the context of trauma. This is especially the case within the context of DV, making research in this area preliminary. It is expected that conscientiousness will have a moderating effect on depression within the context of DV such that women high in conscientiousness will have fewer depressive symptoms when exposed to DV than women with lower levels of conscientiousness. This idea is consistent with theory underlying the FFM that personality traits interact with environmental conditions (e.g., DV) and, through interaction with these conditions, produce an observable effect in the form of a symptom or other behavior (McCrae, 1994). In the case of DV, one of these effects is depressive symptoms. Extraversion is another one of these factors that is expected to interact in this way.

Extraversion. Although extraversion also contains aspects of agency and positive emotionality, a number of personality theorists contend that the defining characteristic of extraversion is positive emotionality, the degree to which one seeks and experiences positive affects and sensations and the tendency to view events within the interpersonal environment in a positive way (Diener & Lucas, 1999; Watson & Clark, 1997). This core characteristic of the trait has been demonstrated in a number of empirical studies (Lucas, Diener, Grob, Suh, & Shao, 2000; Lucas & Fujita, 2000; Lucas, Le, & Dyrenforth, 2008). Although general social behavior is also associated with extraversion as measured within the FFM framework, this is largely in the form of seeking social stimulation and the impact a person has on social networks rather than the maintenance of positive social networks (Wiggins, 1996). Moreover, some research suggests

that extraversion's association with sociability may be a result of increased positive affect rather than a direct manifestation of the trait (Lucas et al., 2000, 2008).

Low levels of extraversion are associated with increased levels of depressive symptoms generally (Bagby et al., 1997; Chien et al., 2007; Enns et al., 2001; Farmer et al., 2002; Hirschfeld & Klerman, 1979; Jylhä & Isometsä, 2006; Kendler & Myers, 2010; Kerr et al., 1970; Lozano & Johnson, 2001), even when comorbid anxiety disorders are taken into account (Trull & Sher, 1994). Further, one early study found that when mood is taken into account, extraversion has a stronger association with depression than does neuroticism (Liebowitz, Stallone, Dunner, & Fieve, 1979). However, Klein and colleagues (2009) suggest that this may be due to an overlap in questionnaire items used to assess both neuroticism and affective symptoms of depression, suggesting a criterion contagion effect. Along similar lines, Tellegen (1985) proposes that depression is better understood as a manifestation of low extraversion than of high neuroticism. This notion has been validated across a number of studies showing that whereas neuroticism has a general influence on depression, the effect of extraversion is more specific impact in that it enables the effect of neuroticism (Doucherty, Klein, Durbin, Hayden, & Olino, 2010; Naragon-Gainey, Watson, & Markon, 2009).

In explaining how extraversion achieves its main effect on depression, meta-analytic data also suggests that in the context of general stress, extraversion is associated with cognitive restructuring (i.e., finding a more positive or realistic way to think about the stressful situation; Connor-Smith & Flachsbart, 2007) and negatively associated with pessimism, specifically (Amirkhan, Risinger, & Swickert, 1995). Related to this, one study found that, like people high in conscientiousness, extraverts rated stressful tasks as being less stressful and they were better able to cope with tasks than less extraverted participants in the study (Penley & Tomaka, 2002).

Other research indicates that extraversion is associated with high levels of other measures of optimism, self-esteem, and positive appraisal, and low levels of measured hopelessness (Marshall et al., 1994; Vickers, Kolar, & Hervig, 1989). Additionally, Gallagher (1990) found that individuals high in extraversion are more likely to appraise potential stressors as challenges rather than as threats.

Like conscientiousness, extraversion leads to less self-critical and otherwise less distressing appraisals of DV and other stressors, and is therefore expected to serve as a protective factor against the development of depression. However, unlike conscientiousness, extraversion may not do so as a result of greater competency beliefs, but instead because of a general tendency for more positive reactions to interpersonal stress. In his framework, Matthews (1992) specifies that extraversion modifies the relationship between physiological arousal and cognitive (schema) activation, thereby having an indirect effect on the processing of stress. Gray's (1981) theory extends this idea, offering a contrast between extraversion and neuroticism such that whereas high levels of neuroticism convey a cognitive sensitivity to punishment, high levels of extraversion are associated with a greater sensitivity to reward signals than punishment signals. Effectively, individuals with higher levels of extraversion are cognitively predisposed (i.e., have a cognitive schema with a greater susceptibility for) to recognize the possibility of rewards in perceived interpersonal stimuli whereas individuals with higher levels of neuroticism are more likely to interpret the same event in terms of how it could result in poorer outcomes. This is expected to function similarly within the context of trauma (specifically, DV) such that more extraverted individuals will perceive and be more likely to react to the less negative aspects of the traumatic event, thereby resulting in fewer depressive symptoms than a less extraverted person would have.

Although the theory and research about how extraversion functions within the context of trauma and other negative life events has been well developed, there has been little work to test how extraversion functions as a moderator between exposure to potentially traumatic experiences and the development of depression. Moreover, this research has also not been applied to women involved in violent intimate relationships. Within the context of DV, it is expected that women high in extraversion will appraise the DV as being less stressful, as reflecting less poorly on themselves as people, and as less globally negative, resulting in lower levels of depressive symptoms than women low in extraversion. In effect, it is anticipated that extraversion will serve a moderating function, buffering the effects of DV exposure such that among women exposed to high amounts of DV, women with higher levels of extraversion will experience fewer depressive symptoms than women with lower levels of extraversion. Among women with low levels of exposure to DV, higher extraversion will still be associated with fewer depressive symptoms, although this effect will be less pronounced due to the absence of trauma with which the trait can interact, ultimately resulting in smaller range of depressive symptoms.

Neuroticism. Neuroticism is a personality trait associated with, among other things, maladaptive and otherwise adverse reactions to interpersonal stress and other life events (Widiger, 2009). High levels of neuroticism not only put one at generally greater risk for depression, but also for negative life events that contribute to this depression (Bolger & Zuckerman, 1995; Kerchner, Rapee, & Schniering, 2009; Lakdawalla & Hankin, 2008; Magnus, Diener, Fujita, & Pavot, 1993). High neuroticism is associated with higher levels of vulnerability to stress and self-criticism, leading more neurotic individuals to be more likely to blame themselves in reaction to interpersonal stress (Costa, Somerfield, & McCrae, 1996; McCrae & Costa, 1985). Similarly, in her framework on the relationship between neuroticism

and depression, Martin (1985) proposes that negative self-schemas common among highly neurotic individuals lend themselves to the development of depression. Within discordant intimate relationships (violent or non-violent), Beach and Fincham (1994) propose that individuals who are high in neuroticism would likely feel more victimized and have more resentful reactions to their partners, setting the stage for the development of depressive symptoms, particularly if they are low in extraversion as well.

Among the FFM traits, neuroticism is the strongest correlate of common mental disorders, with a large average effect size (d = 1.65) for depression specifically (Kotov et al., 2010), and is broadly considered to be a risk factor for it as well as a variety of other mental illnesses (see Lahey, 2009 for review). In general, trait neuroticism shows a strong association with depression and depressive symptoms (Boyce & Parker, 1985; Chien, Ko, & Wu, 2007; Enns, Cox, & Borger, 2001; Fanous, Gardner, Prescott, Cancro, & Kendler, 2002; Finch & Graziano, 2001; Hirschfeld & Klerman, 1979; Houtman, 1990; Jorm et al., 2000; Jylhä & Isometsä, 2006; Kerr, Schapira, Roth, & Garside, 1970; Lozano & Johnson, 2001; Nowakowska et al., 2005; Piedmont & Ciarrocchi, 1999; Russo et al., 1997; Trull & Sher, 1994; Uliaszek et al., 2010, 2011). Behavioral genetic research further suggests shared heritability between neuroticism and depressive experiences (Hettema, Neale, Myers, Prescott, & Kendler, 2006; Kendler & Myers, 2010; Kendler, Gatz, Gardner, & Pedersen, 2006; Kendler, Neale, Kessler, Heath, & Eaves, 1993; Khan, Jacobson, Gardner, Prescott, & Kendler, 2005; Roberts & Kendler, 1999). However, the association between neuroticism and symptoms of depression remains when current mental state is taken into account; this indicates that neuroticism predicts depressive symptoms independently of temporarily depressed mood (Horwood & Fergusson, 1986; Whittington & Huppert, 1998). In other words, although neuroticism has a strong association with depressed mood, neuroticism

as a trait is more than just depressed mood. Taken together, findings from behavioral genetics and psychotherapy research on the relation between neuroticism and depression are consistent with theoretical and empirical work in trait psychology indicating that neuroticism is a diathetic factor (i.e., predisposition) for depression (Costa, Bagby, Herbst, & McCrae, 2005; Clark, Watson, & Mineka, 1994; Enns & Cox, 1997; Klein, Durbin, & Shankman, 2009; Ormel, Oldenhinkel, & Vollebergh, 2004).

There is also research suggesting that neuroticism has not only a main effect on depression, but also serves as a moderator between interpersonal stress and the development of depressive symptoms. For example, one study found that high neuroticism served as a moderator between interpersonal conflict and the development of depression such that it predicted not only the coping methods utilized in reacting to this conflict, but, in another set of analyses, the effectiveness of coping methods in reducing depression (Bolger & Zuckerman, 1995). In this study, participants were given a measure of neuroticism and asked to fill out a diary of general interpersonal conflicts and their level of distress and coping responses to these events for 14 days. The study found that participants with higher neuroticism were more likely to experience negative events, have a greater reaction to them, and be more likely to cope with them using confrontation strategies, the latter of which leads to higher levels of depressive symptoms.

Neuroticism also shows a moderation effect between relationship conflict and depressive symptoms within the context of women in intimate relationships (Davila, Karney, Hall, & Bradbury, 2003; Karney, 2001; Uebelacker & Whisman, 2006). For example, in their longitudinal study of newlywed women Davila and colleagues (2003) found that neuroticism moderated the effect of marital conflict on the development of depression such that increases in

marital conflict resulted in more depressive symptoms among women with high levels of neuroticism than among women with low levels of neuroticism.

The role neuroticism plays in moderating between stress and depressive symptom can also be observed in the relationship between depression and appraisals of stress. In explaining this, Widiger (2009) notes that individuals high in neuroticism are more susceptible to experiencing stressful life events more negatively relative to individuals low in neuroticism. Indeed, numerous studies have suggested that individuals high in neuroticism interpret stress as more threatening, more severe, and otherwise more distressing (Gallagher, 1990; Gunthert, Cohen, & Armeli, 1999). For example, studies examining college students' performance on a stressful situation found that more neurotic participants appraised the situation as being more stressful and themselves as being less likely to be able to cope with these tasks than their less neurotic counterparts (Hemenover & Dienstbier, 1996; Penley & Tomaka, 2002).

Although the research suggesting a relationship between neuroticism and depression is substantial, there are gaps in the literature. While some studies examine the effect of neuroticism across multiple time periods (looking at time period separately), finding that it is positively associated with depression over time (e.g., Chien et al. 2007; Hirschfeld et al. 1983; Lozano & Johnson, 2001), these studies usually measure this effect over the course of two closely occurring time periods rather than being longitudinal in a broader, more long-term sense. Moreover, the participants in these studies were either college students or individuals who were already enrolled in the mental health system, thus limiting the generalizability of these studies to the general population or, more specifically, to women with DV. Although Jorm and colleagues (2001) investigated the relationship between neuroticism and depression with a community sample across two time periods, the results of this study examined only how neuroticism

predicted depression directly, not how neuroticism functioned as a diathesis for depression. While studies by Kendler and colleagues (1993, 1999, 2001, 2002, 2005, 2006, 2010) were longitudinal, had participants drawn from a community sample, and found that neuroticism served as a genetically rooted diathesis for depression, they did not specify the nature of the environmental contribution that would cause an individual with high neuroticism to develop depression.

The findings from these studies, while illustrating the role of neuroticism as a potential diathesis for depression, do not contribute information about how neuroticism functions within the context of trauma. More specifically, no studies have examined how neuroticism functions within the context of DV. It is anticipated that while both DV and neuroticism will predict a high level of depression in women, neuroticism will serve a moderating function in this relationship such that it will amplify the effects of DV. Specifically, higher levels of neuroticism will be associated with more depressive symptoms within the context of DV. In contrast, women with lower levels of neuroticism will exhibit fewer depressive symptoms within the context of DV. Women exposed to DV who have higher levels of neuroticism will have more depressive symptoms than battered women with lower neuroticism. Among women with low levels of DV exposure, higher neuroticism will still be associated with a greater number of depressive symptoms than those with lower neuroticism, although this effect will be less pronounced, resulting in smaller range of depressive symptoms, due to the relative absence of DV.

Current Study

The current study will investigate the role that personality traits (agreeableness, conscientiousness, extraversion, and neuroticism) play in the development of depression within the context of DV. Although previous studies have repeatedly demonstrated the link between

DV exposure and depressive symptoms, there has been little research applying contemporary personality research to the study of women exposed to DV. Existing studies almost exclusively focus either on the personality characteristics of the perpetrators of violence (e.g., Beasley & Stoltenberg, 1992) or on the personality traits (often pathological) of women who are exposed to it (e.g., Pérez-Testor, Castillo, Davins, Salamero, & San-Martino, 2007). By applying contemporary personality theory to the study of trauma, research has shown that normative personality traits influence individuals' response to trauma and their development of subsequent psychopathology, depressive and otherwise. However, this research has not been extended to the study of DV. This will be the first study to describe psychopathology among abused women within the context of personality traits.

Hypotheses. It is expected that the personality traits examined in this study will influence the degree to which depressive symptoms develop within the context of DV, using cumulative scores of both DV and depressive symptoms to examine the effect of prolonged DV exposure on depressive symptoms across a long period of time. DV experiences were summed for the first four years (T1-T4). In order to measure depressive symptoms as long-term sequelae of DV, the number of depressive symptoms was summed for the subsequent four years (T4-T8). As such, the measurement of personality traits at T4 was appropriate for testing moderation effects. First, it is anticipated that all four traits (agreeableness, conscientiousness, extraversion, and neuroticism) will have main effects on the number of depressive symptoms, such that they increment the effect of DV exposure. However, in the case of agreeableness, this main effect will be fully mediated by social support. Additionally, it is expected that conscientiousness, extraversion, and neuroticism will serve as moderators between DV and depressive symptoms and that agreeableness will have this same moderating role. Moreover, these effects (main,

mediating, and moderating) will remain after the effects of the other traits are taken into account. Specifically, it is hypothesized that:

1. Each personality trait will have a main effect on the development of depressive symptoms over and above the main effect of DV. Specifically, higher levels of agreeableness, conscientiousness, and extraversion will be associated with fewer depressive symptoms whereas higher neuroticism will be associated with more depressive symptoms

2. The main effect of agreeableness on depressive symptoms will be mediated by social support such that higher quality of social support will result in fewer depressive symptoms, which will account for the association between agreeableness and depressive symptoms.

3. Conscientiousness, extraversion, and neuroticism, but not agreeableness, will moderate the effect of DV exposure on depressive symptoms.

a. Agreeableness will not moderate the effect of cumulative exposure to DV on depressive symptoms, such that although agreeableness will be associated with fewer depressive symptoms, there will be no differential effect of agreeableness given different levels of DV exposure.

b. Conscientiousness will moderate the effect of cumulative exposure to DV on depressive symptoms, such that higher levels of conscientiousness among women with high levels of DV will be associated with fewer depressive symptoms than among women with lower conscientiousness and high levels of DV exposure.

c. Extraversion will moderate the effect of cumulative exposure to DV on depressive symptoms, such that higher levels of extraversion among women with high levels of DV will be associated with fewer depressive symptoms than among women with lower extraversion and high levels of DV exposure. .

d. Neuroticism will moderate the effect of cumulative exposure to DV on depressive symptoms, such that higher levels of neuroticism among women with high levels of DV will be associated with a greater number of depressive symptoms than among women with lower neuroticism and high levels of DV exposure.

4. The above-mentioned main and moderating effects will remain statistically significant even when controlling for the effect of the other three traits.

Method

Participants

This study is a part of a larger longitudinal study examining the effects of DV on women. The study began with 206 participants recruited in a Midwestern state from rural, suburban, and rural areas with equal numbers of women who had and who had not experienced DV. Over the course of nine years of the study, 41 participants withdrew from or were otherwise not included in the study, resulting in a sample size of 165 participants at the end of the ninth wave of the study. Demographics of the sample as well as the means and standard deviations for each variable of interest are reported in Table 1.

The sample has a wide range of both depressive symptoms and DV exposure. Additionally, means and standard deviations of the sample's levels of FFM personality trait were not significantly different from that of the women in the population on whom the test was normed (see Costa & McCrae, 1985). The only exception to this was that women in this sample scored on average 3 points lower on conscientiousness ($t = 5.4625$; $p < .05$). Additionally, a disproportionate number of single and separated relative to married women left the study by its eighth wave ($\chi^2 = 14.189$; $p < .05$). Those who left the study also had significantly lower

monthly family incomes ($F(1) = 4.451$; $p < .05$). Over half of the women who left the study before the final wave were of ethnic minority status.

Measures

DV. The 46-item Severity of Violence Against Women Scales (SVAWS; Marshall, 1992) is a questionnaire assessing violent behaviors and threats a woman has experienced from her partner within the past year. There are nine categories of abuse and threats. Examples of items include "punched you," "bit you," and "demanded sex whether you wanted to or not." Respondents rate their experiences of abuse on a 4-point scale ranging from "never" to "many times." Marshall (1992) reports obtaining coefficient alphas ranging from .86 (domination/isolation subscale) to .96 (verbal/emotional subscale) among the subscales. The internal consistency in this study is similarly high ($\alpha = .96$). The SVAWS used in this project were administered in the first, second, third, and fourth years of the greater longitudinal study (T1, T2, T3, and T4) for up to three partners per administration. For each individual, total DV exposure was calculated by summing exposure to violent events from each of these past relationships across the years to produce a final cumulative score.

Depression. Participants' symptoms of depression were measured using the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), a 21-item questionnaire composed of statements endorsing symptoms and attitudes that describe specific behavioral manifestations of depression (e.g., guilty feeling, body image, indecisiveness) that are ranked in order of increasing severity. Participants were asked to identify which statement best reflects how they have been feeling during the past week. Beck et al. (1988) reported high internal consistency with a coefficient alpha level of .86. Within this study, internal consistency is also high ($\alpha = .97$). For the purposes of this study, the BDI scores from the fourth (T4)

through the eighth (T8) years of the study are used in the analyses. The scores from these time periods were added to produce a cumulative score of depressive symptoms, thus capturing the enduring effects of depression caused by chronic DV exposure.

Personality. Personality was measured using the NEO Five-factor Inventory (NEO-FFI; Costa & McCrae, 1992b), a well-established, 60-item personality inventory yielding five personality factors: Neuroticism, Extraversion, Conscientiousness, Agreeableness, and Openness to Experience. For the purposes of this study, only Neuroticism, Extraversion, and Conscientiousness were used in the analyses. Participants rated how much each item applied to them on a 5-point Likert-type scale ranging from Strongly Disagree (1) to Strongly Agree (5). Examples of items are "I don't like to waste my time daydreaming," and "Most people I know like me." Internal consistencies for the NEO-FFI range from .63 to .84. The NEO-FFI was administered in the fourth year (T4) of the study.

Social Support. Participants' levels of social support were measured using the Norbeck Social Support Scale (Norbeck, Lindsey, & Carrieri, 1981, 1983), which assesses the number and degree of different types of support provided (i.e., practical and emotional) by individuals in the participants' social network. The measure asks participants to list each significant person in their lives and how much each person provides a specific type of social support across 16 domains (e.g., practical vs. emotional), including support given in regard to DV specifically. Amount of social support experienced is rated on a 5-point scale ranging from "not at all" to "a great deal." Because social support has been shown to influence the development of depressive symptoms within the context of DV (Levendosky et al., 2004), the measures of social support used will be those collected in the same time periods in which depressive symptoms were measured (T4 through T8). However, in order to account for the period within this time frame in which social

support was not measured (T7), the measure of social support used in this study was calculated by summing the practical and emotional support for the time periods in which it was available (T4, T5, T6, and T8) and taking the average across these time periods.

Family income. Participants' income was measured during each wave of the study by asking the total income of women's family per month. Due to its completeness, monthly family income from the first wave of data collection was used for this study.

Negative life events. The number of life events experienced was measured using the Life Experiences Survey (LES; Saranson, Johnson, & Siegel, 1978). The LES is a 49-point checklist of life events experienced in the last year, the severity of which was rated on a 7-point Likert-type scale of ranging from "Extremely negative" to "No impact" to "Extremely positive." Examples of items include "Detention in jail or comparable institution" and "Death of close family member." The number of negative life events was computed by summing all those items endorsed as negative during T4, the time period shared by the components of all analysis.

DV exposure and depressive symptoms for those participants who had information from one or more waves of data collection missing were imputed using previous measurements of those variables. Overall, the 2.7% of the data was imputed. The MCAR statistic (MCAR[58] = 201.172, $p < .05$) suggests that this data was missing non-randomly.

Procedures

Recruitment. Women were recruited through flyers posted in communities throughout the Clinton, Eaton, Ingham, and Shiawassee counties of Michigan and distributed to organizations serving women within the state. Two types of flyers were used: one invited women to participate who had experienced DV during pregnancy and the other invited women to participate in a study about mother-infant relationships. Interested women contacted the study

office by phone, at which time a research assistant conducted a brief screening to determine eligibility. Initial inclusion criteria included 18 to 40 years of age, involvement in a romantic relationship for at least 6 weeks sometime during pregnancy, and fluent in English.

Interview Procedures. Women who volunteered for the study were initially screened in a five-minute interview via telephone to determine eligibility, including DV exposure (designating anyone who endorsed items 6-14 on the Conflict Tactics Scale as having been exposed to DV; Straus 1979). Potential participants were told the study was about women's relationships with the important people in their life, including partners, children, and other family members, and that if they participated in the study they would be asked about their thoughts and feelings about relationships and recent life events, including DV. If the women met criteria and agreed to participate, an appointment was made.

Women were interviewed individually by master's and doctoral students in clinical psychology in private rooms on the campus of a large Midwestern university or in the participants' homes by trained research assistants. Interviews were conducted every year over the nine-year course of the study starting in pregnancy. Participants gave consent for their participation in the study, completed all questionnaires, and were financially reimbursed for their participation. The BDI and, in the fourth wave, the NEO were the first instruments to be administered, with the SVAWS being the last, ensuring that interviewers were blind to the woman's abuse status throughout completion of all other measures.

Results

Correlations between the variables are reported in Table 2. Agreeableness, conscientiousness, extraversion, and social support correlated positively with each other and negatively with neuroticism, DV exposure, and depressive symptoms, which correlated

positively with each other. Conscientiousness did not significantly correlate with DV exposure. All other observed correlations were statistically significant ($p < .05$). These results lent some support for hypothesis 1.

Hypothesis 1 was also tested using a series of hierarchical linear regressions. As expected, DV exposure predicted number of depressive symptoms when controlling for both income and other negative life events. Three of the four personality traits exhibited a statistically significant main effect on depression above and beyond the main effect of DV. Conscientiousness and extraversion were both associated with fewer depressive symptoms over and above DV (see Tables 4 and 5), whereas neuroticism was associated with more depressive symptoms over and above DV (see Table 6). However, agreeableness was not significantly associated with depressive symptoms within the context of DV (see Table 3), thus lending only partial support to hypothesis 1 .

To test hypothesis 2, a series of linear regression analyses were conducted according to Baron and Kenny's (1986) guidance for conducting mediation analyses (see Figure 1). DV exposure was input into the first step of each analysis. In the first analysis, average social support was regressed on agreeableness; in the second, the total number of depressive symptoms was regressed on agreeableness; and in the third, the total number of depressive symptoms was regressed on average social support. Of these, only the relationships between agreeableness and DV and between agreeableness and social support were significant (see Table 7), suggesting that a mediating relationship did not exist.

In order to indicate whether a mediating relationship between the three variables might exist in the absence of DV, the analysis was completed excluding the influence of DV. As in the previous mediation model, average social support was regressed on agreeableness in the first

regression; total number of depressive symptoms was regressed on agreeableness in the second; and total number of depressive symptoms was regressed on average social support in the third. In each case, the regression was significantly significant (see Table 8). In order to test the significance of the indirect effect of the agreeableness on depressive symptoms via social support, Sobel's (1982) test of significance was conducted (see Table 8). The results of this test suggest that social support is a statistically significant partial mediator of the relationship between agreeableness and the number of depressive symptoms, but within the context of DV exposure, this mediation is disrupted.

As with hypothesis 1, hypothesis 3 was tested using a series of hierarchical linear regressions. Contrary to hypotheses, there was no significant moderating effect of conscientiousness (see Table 4). However, consistent with hypothesis 3c, extraversion moderated the effect of DV exposure, serving as a buffer for DV and resulting in fewer depressive symptoms in women exposed to DV (see Table 5 and Figure 2). Neuroticism also moderated the effect of DV exposure, resulting in more depressive symptoms in women exposed (hypothesis 3d; see Table 6 and Figure 3).

When the main effect of each personality trait was analyzed while controlling for the three other traits (Hypothesis 4), only neuroticism predicted depressive symptoms above and beyond both DV exposure and other personality traits (see Table 12). The main effects of agreeableness (Table 9) and conscientiousness (Table 10) were all insignificant when other traits were controlled. One exception to this was extraversion, which had a significant main effect when agreeableness and conscientiousness were controlled for (see Table 12), although this effect did not remain when neuroticism was co-varied (see Tables 9-10, 12). As such, these analyses lent only partial support to hypothesis 4. However, the moderating relationship

between DV exposure and both extraversion and neuroticism remained significant (see Tables 11-12 and Figures 4-5), lending some further support for hypothesis 4. That neuroticism significantly moderates when other traits are co-varied but not when these traits are not co-varied is discussed below.

In order to provide the best test for the hypotheses, the main and moderating effects of personality traits, which were measured at a single point (T4), the design of this study incorporated measurements of DV from T1-T4 and of depressive symptoms from T4-T8 in its analyses. However, within the context of the greater longitudinal study, DV and depressive symptoms were measured at each of these time periods. Additionally, research has shown that depressive symptoms decrease when exposure to DV ceases (Mertin & Mohr, 2001). Given this, in order to replicate the overall results of the original design of this study across time periods that DV and depressive symptoms were measured at the same time, hypothesis 4 was re-tested using different combinations of the time periods used in this study.

A series of post hoc tests were conducted to examine whether or not these main and moderating effects for hypothesis 4 remained significant when both DV and depressive symptoms were examined within three additional time periods of the study. Across time periods T1-T4, T4-T8, and T1-T8, the main effect of neuroticism and moderating effects of both neuroticism and extraversion were replicated when controlling for other traits. However, there were some changes in the second block of the regression model testing the main and moderating effects of neuroticism. In this block, in which conscientiousness and agreeableness, but not neuroticism, are controlled for, the main effect of extraversion was only replicated in time period T4-T8, but not in T1-T4 or T1-T8. Additionally, the main effect of conscientiousness was significant in this block in T1-T8. The main effect of agreeableness also became significant in

T1-T8, but only after all traits and the interaction terms of conscientiousness, extraversion, or neuroticism, (but not agreeableness) were included in the equation.

Discussion

The purpose of this study was to examine the influence of FFM personality traits on depressive symptoms within the context of DV. All four traits in the study were hypothesized to have a main effect, one of the three (agreeableness) was proposed to exert its effect through a mediator (social support), and three (conscientiousness, extraversion, and neuroticism) were hypothesized to have moderation effects. Each trait was input into a series of hierarchical linear regressions. Although some of the proposed main and moderating effects of each trait appeared to be confirmed initially, many of these effects diminished within the context of other traits. Additionally, the proposed mediating effect of social support on the relationship between agreeableness, DV, and depressive symptoms was only significant when DV was not taken into account for the full sample. Each of these effects will be discussed in turn.

Influence of personality traits on depressive symptoms. The results of this study were consistent with previous research on DV linking DV exposure to the development of depressive symptoms (e.g., Golding, 1999). These results were also consistent with personality research (e.g., Kotov et al., 2010) showing a significant main effect of personality traits on symptoms of depression. One strength of this study was that these two lines of research were combined, suggesting that the main effects of personality traits on depressive symptoms continued to be observed above and beyond the influence of DV exposure. This is consonant with previous work on personality traits within the context of trauma, although FFM traits have never been examined within a sample of battered women, much less examined as a potential contributor to psychopathology upon exposure to DV.

Although the main effects of the four FFM traits examined in this study were demonstrated when tested independently of each other, the effects of all but one (neuroticism) became insignificant when analyzed within the context of the respective other three. One potential interpretation of these results is that while neuroticism is not synonymous with depression (as is evident by a high but imperfect correlation between the two variables), its relationship with depressive symptoms is so strong that the effects of other traits, which are correlated with neuroticism, are rendered insignificant, possibly because their association with depression was largely represented by their correlation with neuroticism. This understanding of the relationship between neuroticism and depression is consistent with genetic studies examining these two variables (e.g., Kendler & Myers, 2010).

In contrast, both of the moderating effects that were statistically significant in models in which other traits were not controlled for (extraversion and neuroticism) remained significant when other traits were co-varied. The continued moderating influence of neuroticism despite the added influence of the other three traits is notable, but consistent with previous research suggesting a close association between neuroticism and depression. More interesting is that despite the reduction of the main effect of extraversion when the other three traits are co-varied, the moderating effect still remains such that even within the context of other FFM traits, extraversion continues to buffer and neuroticism continues to exacerbate the effect of DV on the number of depressive symptoms. Two such explanations for this seem both more plausible and more consistent with contemporary theory and research on personality traits.

Interpreting these results within the structural framework of the FFM, the finding that neuroticism and extraversion are the two traits that hold the greatest influence on depressive symptoms is consistent with previous research. Gershuny and Sher (1995), for example, found

that the neuroticism's association with depression is actually facilitated by low levels of extraversion, a trend observed across the age range (Joiner & Lonigan, 2000). This does not necessarily make agreeableness and conscientiousness irrelevant within the context of DV and depression, but it does call for a revision of the thought driving the current study. Rather than being buffers against the development of depressive symptoms within the context of DV, agreeableness and conscientiousness may instead affect the ways in which these depressive symptoms are expressed, a hypothesis that can be tested examining levels of trait and number and type of depressive symptoms across groups. In other words, whereas extraversion and neuroticism, consistent with this study's hypotheses, are diathetic factors for symptoms of depression within the context of DV, agreeableness and conscientiousness may have more of a pathoplastic influence, although future research will be necessary to test this hypothesis.

One can also interpret these results within a broader context, specifically, that of interpersonal theory. Within this overarching framework, agency and communion are the two superordinate traits understood to account for the most if not all interpersonal behavior. Current research situates FFM traits into this context, modeling extraversion and openness as meta-traits related to agency and agreeableness, conscientiousness, and neuroticism (reverse-scored) as components of communion (DeYoung, Peterson, & Higgins, 2002; Digman, 1997). Within this context, agency and communion can be thought of as the two primary diathetic factors for depression, which, as a number of theorists have remarked (e.g., Blatt 1974; Joiner et al., 1999), is an inherently interpersonal condition. Further, in their study incorporating circumplex measures of personality using agentic and communal descriptions of self, Cain and colleagues (2011) have shown that these super-traits also function pathoplastically such that agency and

communion affect not only if but also how depressive symptoms are expressed (i.e., that certain personality traits were associated with different severity and duration of depressive symptoms).

Perhaps the most interesting finding from the series of post hoc tests was that the effects of personality traits were largely consistent across different time periods. This was further reinforcement of the idea that extraversion and neuroticism are the two primary diatheses from the perspective of personality traits. However, that main effects of conscientiousness and agreeableness emerged in some time periods as became significant and that the main effect of extraversion became non-significant were also interesting. One reason why conscientiousness may be more (and extraversion less) influential in terms of main effects over a longer span of experience of DV and depressive symptoms may have to do with how each trait has its effect. For example, conscientiousness may have more influence on depressive symptoms within the context of DV through the long term management of the stress whereas extraversion may have a shorter term effect dealing more with affect than with stress management. A similar phenomenon might be observed with agreeableness: perhaps the main effect of agreeableness is more evident over the long term, specifically once the influences of other traits are taken into account.

Theory and research also remain underdeveloped, however, in describing *how* personality traits, superordinate or FFM, function within the context of DV. In some cases, however, existing theory dealing with the effects of DV on general social functioning (e.g., Walker, 1979) can be expanded to incorporate the influence of personality traits. This can be observed in possible explanations for the effect of DV on the relationship between agreeableness and social support.

Agreeableness and social support. The proposed function of social support as a mediator between agreeableness and depressive symptoms was demonstrated. However, this effect was rendered null when DV exposure was introduced statistically. This builds on previous studies on the relationship between DV and social support in a number of ways. First, that the relationship between social support and depressive symptoms becomes statistically insignificant when controlling for the effect of cumulative DV suggests that while DV may indeed attrite the social support networks of women who experience it, this attrition has an insignificant influence on the number of depressive symptoms relative to the influence of DV. In other words, these results suggest that it is the effect of cumulative DV itself rather than the effect of DV mediated through the erosion of social support that predicts greater numbers of depressive symptoms. This does not contradict previous research (e.g., Mitchell & Hodson, 1983) suggesting that women who experience DV do not benefit from support from social networks, but rather that the experience of DV exposure alters the normal relationship between social support and depression.

Also important is that agreeableness predicts social support independent of DV exposure but ceases to do so significantly when DV is taken into account. One interpretation of this is that although high levels of agreeableness generally allow for the maintenance of social support networks, the presence of DV negates this. In effect, exposure to DV overwhelms the ability of a highly agreeable person to maintain quality social support networks.

The effect of DV on the mediating function of social support between agreeableness and depressive symptoms can perhaps best be understood in terms of a disruption of interpersonal relations. Whereas for women without exposure to DV, higher levels of agreeableness will lead to a higher quality of social support, which in turn leads to decreased numbers of depressive symptoms, DV exposure disrupts this pattern by negating both the ability of agreeableness to

influence social support and by preventing social support from decreasing levels of depressive symptoms. One explanation for this effect is that in addition to perpetrating violence, males in violent relationships directly degrade the social support networks of their partners (Dobash & Dobash, 1998; Walker, 1979), making this degradation in social networks unrelated to the personality characteristics of the women they batter.

Implications. Although knowledge about how traits influence the degree to which depressive symptoms are expressed among battered women is important for the general purpose of progress in the fields of personality psychology and the study of trauma, there are also specific implications for the study of DV. For example, the finding that both extraversion and neuroticism moderate DV exposure to inhibit or exacerbate the expression of depressive symptoms lends further evidence to the theory of trait-environment interactions being the cause of depression. These findings also discredit the idea that depression is either the simple result of DV or the simple result of traits (i.e., depression is just neuroticism).

The suggestion that neuroticism and extraversion are, respectively, the two primary vulnerability and protective factors for depressive symptoms also provides further support for previous studies (Gershuny & Sher, 1995; Joiner & Lonigan, 2000; Vollrath & Torgersen, 2000). Similarly, that agreeableness and conscientiousness predicted depressive symptoms above and beyond DV exposure before controlling for traits is also a verification of previous studies. Moreover, that their influence diminished after controlling for the other traits is still important in that these results suggest the possibility that agreeableness and conscientiousness may have more of a pathoplastic influence within the context of depression. This line of thought has important implications for treatment. Screening battered women for depressive vulnerabilities and protective factors for depression (e.g., using tests measuring neuroticism and extraversion) would

be less immediately useful than measuring depressive symptoms directly (e.g., via measuring the affective, cognitive, and/or physiological symptoms of depression). However, if agreeableness and conscientiousness influence the way in which these depressive symptoms were expressed, knowing this could inform treatment. For example, if women lower in conscientious were more likely to exhibit more cognitive than emotional symptoms of depression, then a more cognitive approach to treatment for depression (i.e., challenging distorted thoughts) could be selected as a potentially more appropriate treatment.

That social support mediated the relationship between agreeableness and depressive symptoms before exposure to DV was controlled for but ceased to do so afterward also has important implications. First, the disruption in the relationship between agreeableness and social support associated with DV exposure is consistent with previous research that DV exposure (and, possibly, the men who perpetrate DV, although this was not examined in this study) limits the potential for social support that might otherwise exist in someone who would have a robust social network outside the context of DV exposure. Following from this, a practical implication of this finding is that rather than targeting a therapeutic intervention explicitly emphasizing social support towards women particularly high or low in a given personality trait (e.g., agreeableness), this could be a component of intervention for all battered women suffering from depression.

Limitations. Although this study broke new ground in many respects, it has some limitations, stemming largely from the measures used and the time at which they were administered. With respect to the measurement of personality traits, personality was assessed between the measurement of cumulative DV and before depressive symptoms. Measuring personality before adult relationships (and, thus, exposure to direct forms of DV) as well as after

abuse would perhaps be a more ideal means of measuring personality with respect to trauma. Measurement at these different time periods would also take into account any subtle changes in personality that may have occurred due to maturity as well as any possible shift in trait levels due to traumatic experience.

A second limitation with the measurement of personality has to do with the type of measurement used. Although 60-item measure of FFM traits is sufficient for measuring the traits themselves, it may not allow for a reliable measure of facets of these traits. For example, the self-consciousness and stress vulnerability facets of neuroticism and the competence facet of conscientiousness would seem to be particularly relevant for the interpretation of and reaction to the experience of DV. However, these are not able to be fully assessed using the more streamlined FFM measure employed in this study.

Considering personality assessment more broadly, although FFM measures of personality are the most empirically validated, the inherently interpersonal nature of both DV and depression are perhaps best examined using more expressly interpersonal measures of personality. This could be accomplished using personality measures incorporating the interpersonal circumplex such as the Revised Interpersonal Adjective Scale (IAS-R; Wiggins, Trapnell, & Phillips, 1988) or the more widely available interpersonal circumplex scale using items from the International Personality Item Pool (IPIP-IPC; Markey & Markey, 2009). Either alternatively or in addition to these measures, the use of performance based measures of object relations such as the Social Cognition and Object Relations Scales (SCORS; Westen, 1995) or object relations measures on the Rorschach Inkblot Test (Urist, 1977) could provide additional information on the interpersonal functioning of abused women. Because of the implicit nature of object relations

and the scales used to measure them, this would provide a useful supplement to more explicit self-report measures of personality and interpersonal characteristics.

Considering the measurement of interpersonal behavior more broadly, including men as well as women in the pool of participants would also yield additional useful information. Such a study would enable not only a comparison of the interpersonal attributes and object relations qualities of women versus men within the context of violent relationships, but also allow for a more dyadic analysis not only of the real-time interactions, but also of personality traits and other interpersonal characteristics. Because of the inherent dangers of increasing a woman's time with her batterer, in-person interviews with violent men could be substituted by the inclusion of a woman's third-person rating of her partner's personality characteristics.

With respect to the measurement of depression, there are limitations to the BDI in terms of the range of depressive symptoms measured. For example, although the BDI is considered by many to be the gold standard for the assessment of depression, it primarily measures the cognitive symptoms of depression. In contrast, other measures of depression contain sub-scales for the measurement of cognitive, emotional, and physiological symptoms of depression. The measurement of depressive symptoms in this study was also a sum of time periods, which, while it offers insight into the effects of prolonged DV exposure across time periods, allows for the study of cumulative depressive symptoms across these time periods, but not an examination of depressive symptoms within time periods. The same critique holds for the use of cumulative periods of DV exposure: while using a summed score enables the study of the cumulative effects of DV, it does not allow for the study of the relationship between DV exposure at specific time periods within the greater time period of exposure. Future research could examine whether DV (or specific types of DV) have greater or lesser influence on specific types of depression and

whether personality characteristics maintain their ability to moderate the impact of DV on each, both across and within time periods.

A final limitation has to do with the study's sample. Even among those women who endorsed the highest amounts of DV exposure within the sample of this study, the severity of DV could be lower than what may occur within the greater population, at least as indicated by examples in case studies (e.g., Walker, 1979). This remains the case despite over-sampling an at-risk community population for DV exposure. One reason for this could be that women who experience the most severe and chronic forms of DV may be unwilling and/or unable to volunteer to participate in research, especially research involving DV. In any case, although personality traits may have different effects on more severe or more chronic forms of DV, this was not measured in this study, although it could be a focus of future studies. These and other considerations offer learning points for future areas of research on the intersection between DV, depression, and personality.

Future research. From the broad perspective of interpersonal theory, future research would benefit from the use of more explicitly interpersonal measures of personality, including first- or third-person reporting of the DV perpetrator's personality characteristics. Although this could be done with circumplex measures of personality (e.g., IAS-R, IPIP-IPC), it could also be done using the agency and communion scales that Digman (1997) alludes can be derived from FFM measures of personality. These composite scales were not computed and used in this study because the sample size was not sufficient for the factor analytic construction of the scales suggested by other research (Markon et al., 2005). This would build on the results of this study by clarifying whether it is extraversion and neuroticism that are the primary protective and vulnerability factors for depressive symptoms or whether it is the two superordinate traits of

agency and communion, of which each of these traits is a respective member that have greater influence.

Examining the influence of traits at the level of lower-order facets would yield yet a different kind of additional information. For example, it could be that the stress vulnerability and self-consciousness facets of neuroticism account for the strong association between neuroticism and depression whereas the impulsivity and hostility facets have minimal influence and, moreover, make the analysis of personality's influence on depressive symptoms within the context of DV less clear. Future research could examine whether or not the influence of personality at the level of the facet is useful for understanding the effects of DV.

Although the results of this study indicate main and moderating effects of certain personality traits on depressive symptoms within the context of DV, more research is needed to examine how these effects occur. For examine, high levels of neuroticism are associated with more stressful and self-critical appraisals to stressful events whereas extraversion is associated with less stressful appraisals to stress and more effective methods of coping with the stress (Costa, Somerfield, & McCrae, 1996; Gunthert, Cohen, & Armeli, 1999; Penley & Tomaka, 2002). However, these trends have not been tested within the context of DV, trauma more generally, or with respect to the depressive symptoms.

Although the way in which personality functions and is measured within the context of DV is an important consideration for future research, the measurement and classification of both DV and depressive symptoms may also be important. With respect to the former, the current study examined accumulated DV, not specific acts within the spectrum of DV. As Johnson (1995) points out, however, there may be different types of DV, one that erupts spontaneously as a result of disagreements (i.e., common or situational couple violence) and a second type that is

an effortful attempt by the man in the relationship to control his partner (i.e., intimate terrorism or coercive controlling violence). Future research could investigate whether different personality traits moderate these different forms of DV as well as whether these types differentially predict different symptoms of depression.

Similarly, and in keeping with the interpersonal understanding of DV, there have been a variety of studies investigating the interpersonal nature of depression in greater specificity. For example, Blatt and colleagues (1976), using the Depressive Experiences Questionnaire, found that specific types of depressive symptoms (e.g., physiological vs. cognitive) differentiated anaclytic and introjective forms of depression. Additionally, from the perspective of the etiology of these symptoms, Bieling and colleagues (2000) found differences in the specific etiologies of these two different forms of depression. Future research into which form of depression in terms of both etiology and symptom type is more prevalent among women exposed to DV could not only engender further insight into the nature of DV, but also guide the treatment of women experiencing depressive symptoms as a result of experiencing DV.

This study and the potential future studies suggested thus far all make use of a variable-centered approach to research methodology, viewing personality traits, depressive symptoms, and DV exposure as variables that function similarly across all study participants. Although these studies offer valuable lessons about how these individual variables function, there are other, equally useful ways of studying and understanding them. For example, awareness of how each personality trait functions independently is important to predict how it will function within the context of stress and trauma. However, any given personality trait necessarily operates in tandem with other traits within the broader context of the individual (Robins, John, & Caspi, 1998). This is consistent with the person-centered view that the individual is best understood in

terms of the integration of his or her attributes (e.g., personality traits) rather than the sum of them (Bergman, Magnusson, & El-Khouri, 2003; Magnusson, 1998). Whereas variable-centered approaches focus on relations between variables by examining mean differences across groups, a person-centered approach is based on the idea that distinct sub-groups within a sample exist and that these sub-groups will exhibit different configurations of a person's characteristics, which in turn lead to different outcomes (von Eye & Bogat, 2006). As a result, an analysis at the level of the person would be helpful for understanding how these traits are typically organized and function. This is especially the case for the study of personality within the context of DV (Bogat, Levendosky, & von Eye, 2005).

A number of researchers taking a person-centered approach to studying psychopathology note that the analysis of individual features at the level of sub-groups of people is an appropriate means of capturing relevant differences between different individuals (Bergman 1998; Bergman & Magnusson, 1997; Bergman, Magnusson, & El-Khouri, 2003; Laursen & Hoff, 2006; Robins, John, & Caspi, 1998). This is particularly the case for longitudinal or psychopathology research (Achenbach & Edelrock, 1983; Bergman, 2000; Skinner & Blashfield, 1982) as well as for personality (Asendorpf, 2000; Asendorf & van Aken, 1999; Robins, John, & Caspi, 1998). Future research could aim at studying how groups of women with specific patterns of personality traits differ in their susceptibility and expression of depressive symptoms as well as whether these different patterns of personality show different types of etiologies or expressions of depressive symptoms. This approach to research would enable the investigation into whether some FFM traits are diathetic and others are pathoplastic with respect to symptoms of depression among battered women.

Finally, there are likely a number of other factors that influence whether or not women exposed to DV will exhibit symptoms of depression. In the past, variables outside the individual have been examined (e.g., type of DV experienced, availability of social support). However, as the results of this study suggest, personality is also influential in determining whether or not women develop depressive symptoms following exposure to DV. Research examining not only personality traits but other factors internal to the battered woman will likely be a fruitful area of inquiry in the future.

Appendices

Table 1. *Descriptive statistics.*

	Original Sample				Left study			
Predictor	Mean	S.D.	No.	%	Mean	S.D.	No.	%
Marital status								
Single			103	50			28	67
Married			83	40			10	24
Separated			9	4			3	7
Divorced			10	5			0	0
Widowed			1	1			0	0
Ethnicity								
African American			42	24			9	43
Asian American/Pacific Islander			2	1			1	5
European-American			115	65			10	48
Latina			9	5			1	5
Native American			2	1			0	0
Multi-racial			8	5			0	0
Other			29	14			20	50
Mean age at initial interview	25.4	5.1			25.2	5.9		
Monthly income	1903.6	1488.9			1434.7	1301.4		
Personality traits								
Agreeableness	33.2	5.9						
Conscientiousness	33.8	6.7						
Extraversion	29.8	5.4						
Neuroticism	18.5	7.8						
DV (cumulative)	21.2	32.3						
Depression (BDI; cumulative)	44.2	39.7						
Social support (average)	129.7	61.9						

Table 2. *Correlational data for DV exposure, depressive symptoms, personality traits, and social support.*

	1	2	3	4	5	6
1. DV exposure	—					
2. Depressive symptoms	.471*	—				
3. Agreeableness	-.323*	-.311*	—			
4. Conscientiousness	-.144	-.405*	.491*	—		
5. Extraversion	-.240*	-.419*	.377*	.465*	—	
6. Neuroticism	.378*	.700*	-.481*	-.561*	-.437*	—
7. Social support	-.190*	-.223*	.246*	.219*	.274*	-.289*

* $p < .05$

Table 3. *Effects of DV exposure and agreeableness on number of depressive symptoms.*

Predictor	*b*	*S.E.*	R^2	ΔR^2
Step 1: DV	.48*	.09		
Negative life events	4.40*	1.22		
Income	-.01*	.00	.34	
Step 2: Agreeableness	-.70	.34	.35	.01
Step 3: Agreeableness x DV	-.02	.01	.35	.01

* $p < .05$

Table 4. *Effects of DV exposure and conscientiousness on number of depressive symptoms.*

Predictor	*b*	*S.E.*	R^2	ΔR^2
Step 1: DV	.48*	.09		
Negative life events	4.40*	1.22		
Income	-.01*	.00	.34	
Step 2: Conscientiousness	-1.39*	.43	.39	.05
Step 3: Conscientiousness x DV	.00	.01	.39	.00

* $p < .05$

Table 5. *Effects of DV exposure and extraversion on number of depressive symptoms.*

Predictor	*b*	*S.E.*	R^2	ΔR^2
Step 1: DV	.48*	.09		
Negative life events	4.40*	1.22		
Income	-.01*	.00	.34	
Step 2: Extraversion	-1.75*	.58	.38	.05
Step 3: Extraversion x DV	-.06*	.02	.44	.05

* $p < .05$

Table 6. *Effects of DV exposure and neuroticism on number of depressive symptoms.*

Predictor	*b*	*S.E.*	R^2	ΔR^2
Step 1: DV	.48*	.09		
Negative life events	4.40*	1.22		
Income	-.01*	.00	.34	
Step 2: Neuroticism	2.86*	.37	.56	.22
Step 3: Neuroticism x DV	.02*	.01	.58	.02

* $p < .05$

Table 7. *Social support mediating agreeableness and depressive symptoms controlling for DV.*

Step	Path	Predictor	Outcome	*b*	*S.E.*	R^2
1	*c*	Agreeableness	Depressive symptoms	-1.18*	.48	.25
2	*a*	Agreeableness	Social support	2.12*	.85	.08
3	*b*	Social support	Depressive symptoms	-.09	.05	.28
	c´	Agreeableness	Depressive symptoms	-1.12*	.50	.28
Sobel test of indirect effect of mediator: *ab* = -1.51						

* $p < .05$

Table 8. *Social support mediating agreeableness and depressive symptoms without controlling for DV.*

Step	Path	Predictor	Outcome	*b*	*S.E.*	R^2
1	*c*	Agreeableness	Depressive symptoms	-2.06*	.49	.10
2	*a*	Agreeableness	Social support	2.53*	.81	.06
3	*b*	Social support	Depressive symptoms	-.15	.05	.05
	c´	Agreeableness	Depressive symptoms	-1.93*	.53	.13
Sobel test of indirect effect of mediator: *ab* = -2.10*						

* $p < .05$

Table 9. *Effects of DV exposure and agreeableness on number of depressive symptoms with other traits co-varied.*

Predictor	*b*	*S.E.*	R^2	ΔR^2
Step 1: DV	.48*	.09		
Negative life events	4.40*	1.22		
Income	-.01*	.00	.34	
Step 2: Conscientiousness	.12	.44		
Extraversion	-.40	.56		
Neuroticism	2.80*	.43	.56	.23
Step 3: Agreeableness	.60	.49	.57	.01
Step 4: Agreeableness x DV	-.01	.01	.57	.00

* $p < .05$

Table 10. *Effects of DV exposure and conscientiousness on number of depressive symptoms with other traits co-varied.*

Predictor	*b*	*S.E.*	R^2	ΔR^2
Step 1: DV	.48*	.09		
Negative life events	4.40*	1.22		
Income	-.01*	.00	.34	
Step 2: Agreeableness	.60	.47		
Extraversion	-.45	.53		
Neuroticism	2.90*	.41	.57	.23
Step 3: Conscientiousness	-.03	.46	.57	.00
Step 4: Conscientiousness x DV	-.01	.01	.57	.00

* $p < .05$

Table 11. *Effects of DV exposure and extraversion on number of depressive symptoms with other traits co-varied.*

Predictor	*b*	*S.E.*	R^2	ΔR^2
Step 1: DV	.48*	.09		
Negative life events	4.40*	1.22		
Income	-.01*	.00	.34	
Step 2: Agreeableness	.58	.49		
Conscientiousness	-.13	.44		
Neuroticism	2.96	.43	.57	.23
Step 3: Extraversion	-.44	.56	.57	.00
Step 4: Extraversion x DV	-.05*	.02	.60	.04

* $p < .05$

Table 12. *Effects of DV exposure and neuroticism on number of depressive symptoms with other traits co-varied.*

Predictor	*b*	*S.E.*	R^2	ΔR^2
Step 1: DV	.48*	.09		
Negative life events	4.40*	1.22		
Income	-.01*	.00	.34	
Step 2: Agreeableness	.06	.56		
Conscientiousness	-1.04	.50		
Extraversion	-1.15*	.64	.41	.07
Step 3: Neuroticism	2.89*	.43	.57	.16
Step 4: Neuroticism x DV	.02*	.01	.59	.02

* $p < .05$

Figure 1. *Mediation relationship with paths identified.*

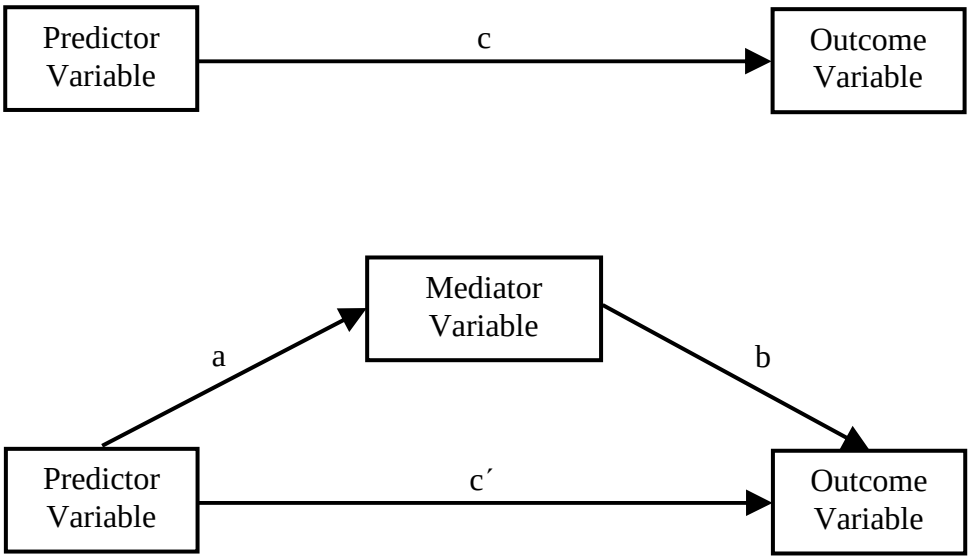


Figure 2. *Moderating effect of extraversion on the relationship between DV exposure and number of depressive symptoms.*

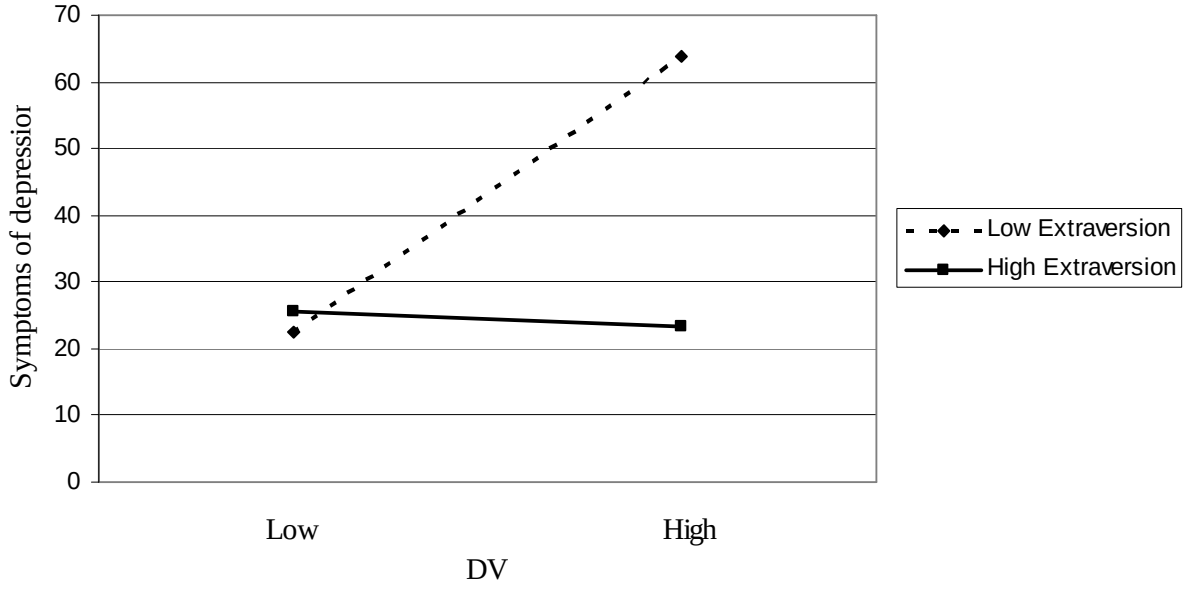


Figure 3. *Moderating effect of neuroticism on the relationship between DV exposure and number of depressive symptoms.*

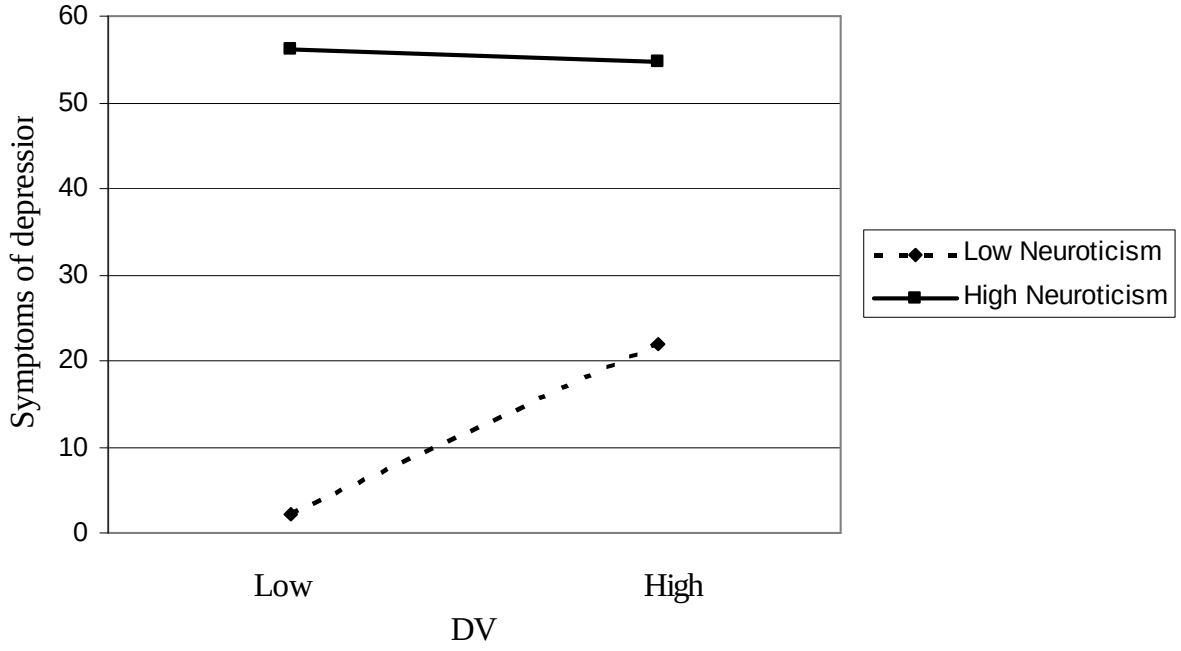


Figure 4. *Moderating effect of extraversion on the relationship between DV exposure and number of depressive symptoms after agreeableness, conscientiousness, and neuroticism are co-varied.*

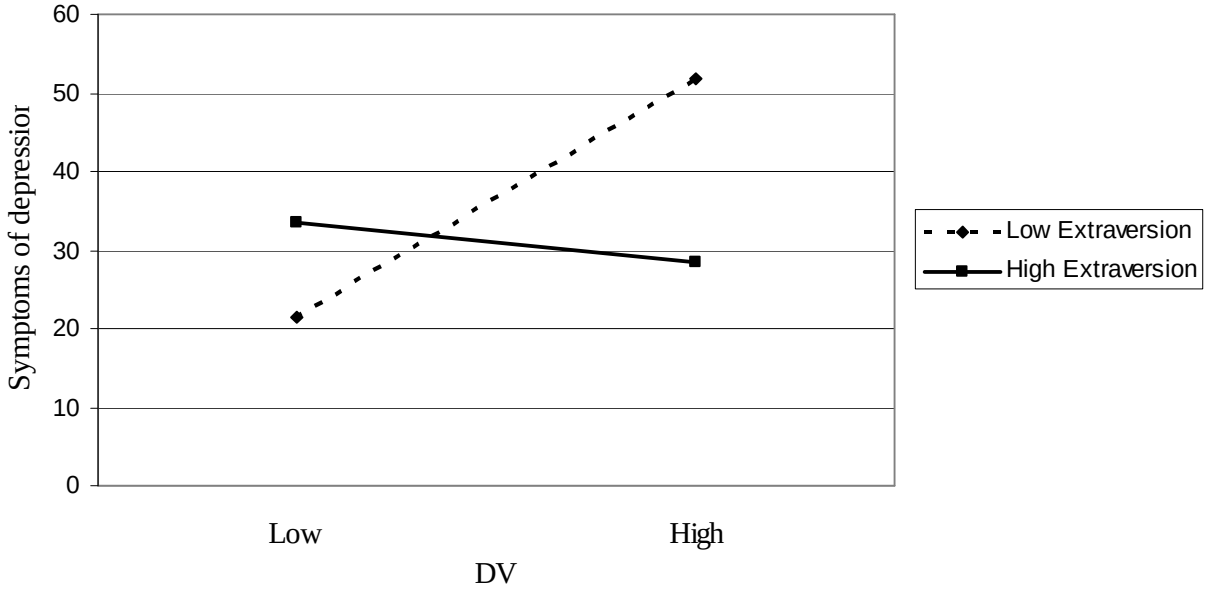
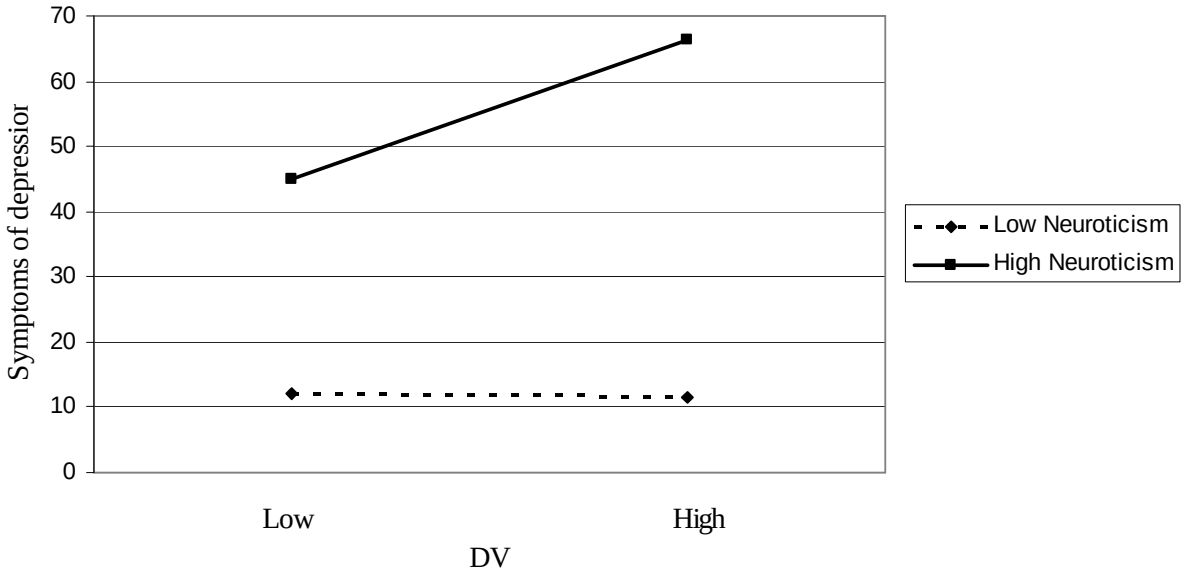


Figure 5. *Moderating effect of neuroticism on the relationship between DV exposure and number of depressive symptoms after agreeableness, conscientiousness, and extraversion are co-varied.*



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